



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,213	06/14/2001	David R. Oran	2705-169	8455

7590 03/08/2005

Marger Johnson & McCollom, P.C.  
1030 SW Morrison Street  
Portland, OR 97205

EXAMINER
----------

KADING, JOSHUA A

ART UNIT	PAPER NUMBER
----------	--------------

2661

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/882,213

Applicant(s)

ORAN, DAVID R.

Examiner

Joshua Kading

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 6/14/01
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-21, 23-30 and 32-50 is/are rejected.
- 7) ☒ Claim(s) 3, 9, 15, 19, 22, 28, 31 and 37 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6-14-01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

Claims 9, 15, 19, 28, and 37 are objected to because of the following informalities:

5           Claim 9, line 2; claim 28, line 2; and claim 37, line 2 state, "only to the ports". For clarity and to more clearly reference the original disclosure of "the ports", "only to the ports" should be changed to --only to the other ports--.

          Claim 15, line 1 states, "including multiple ports". To avoid confusion with "the multiple ports" disclosed in the parent claim, "including multiple ports" should be  
10   changed to --including additional multiple ports--.

          Claim 15, line 3 states, "the ports". For the sake of clarity and consistency, "the ports" should be changed to --the additional multiple ports--.

          Claim 19, line 1 states, "including ports". To avoid confusion with the previously disclosed ports, "including ports" should be changed to --including additional ports--.

15           Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

20           A person shall be entitled to a patent unless –

          (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section  
25   351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5           Claims 1, 2, 9-12, 15, 18-21, 28-30, 37-39, 42, 45, and 48 are rejected under 35  
U.S.C. 102(e) as being anticipated by U.S. Patent 6,331,983 B1 (Haggerty et al.).

          Regarding claims 1, 20, and 29, Haggerty discloses a method (claim 1), a  
computer program (claim 20, Haggerty, col. 14, lines 55-65), and a system (claim 29)  
10   “for identifying failures in a network, comprising: means for detecting a port failure in a  
switch (col. 30, lines 58-60); means for identifying one or more MAC addresses  
associated with the port failure (col. 30, lines 60-62); and means for send failure  
notifications to other ports on the switch that identify the MAC addresses associated  
with the port failure (col. 30, lines 65-col. 31, lines 1-3).”

15  
          Regarding claims 2, 21, and 30, Haggerty discloses the method of claim 1, the  
computer program of claim 20, and the system of claim 29. Haggerty further discloses,  
“means for identifying when multiple ports connected to the network processing device  
have failed (col. 30, lines 58-60 where the system detects port failure on all of the ports,  
20   not just one); and means for sending separate failure notifications to the other ports in  
the switch identifying each one of the multiple ports connected to the network  
processing device that have failed (col. 30, lines 60-col. 31, lines 1-3).”

Regarding claims 9, 28, and 37, Haggerty discloses the method of claim 1, the computer program of claim 21, and the system of claim 29. Haggerty further discloses, "means for configuring the switch to send the failure notification only to the other ports in the switch coupled to routers or other switches (col. 30, lines 58-col. 31, lines 1-3)."

5

Regarding claim 10, Haggerty discloses, "a switch, comprising: multiple ports that monitor for a communication failure with connected network processing devices (col. 30, lines 58-62); and a processor that sends a failure notification out through the multiple ports when the communication failure is detected on one of the multiple ports (col. 30, lines 60-col. 31, lines 1-3)."

10

Regarding claim 11, Haggerty discloses, "a switch according to claim 10 including a table that includes MAC addresses associated with the multiple ports, the processor including in the failure notification the MAC address in the table associated with the port detecting the communication failure (figure 6, element 34 as described in col. 16, lines 49-64)."

15

Regarding claim 12, Haggerty discloses, "a switch according to claim 10 including a port configuration table that identifies which ports the processor sends the failure notification (figure 6, element 34 as described in col. 16, lines 49-64)."

20

Regarding claim 15, Haggerty discloses, "a switch according to claim 10 including additional multiple ports on the switch connected to a first network processing device, the processor sending a separate failure notification for each one of the additional multiple ports connected to the first network processing device detecting a failure (col. 30, lines 60-col. 31, lines 1-3)."

Regarding claim 18, Haggerty discloses, "a switch according to claim 10 wherein the switch is an Ethernet switch for coupling to multiple routers (col. 23, lines 4-6)."

Regarding claim 19, Haggerty discloses, "a switch according to claim 18 including additional ports on the switch for coupling to personal computers over a VLAN connection (col. 25, lines 49-61)."

Regarding claims 38, 42, 45, and 48, Haggerty discloses a device (claim 38), a method (claim 42), a computer program (claim 45, Haggerty, col. 14, lines 55-65), and a system (claim 48) "comprising: one or more ports for communicating and receiving failure notifications from a switch, the failure notifications including a MAC address associated with a port on the switch that has failed (col. 30, lines 58-62); and a processor that reroutes around an adjacent network processing device on the switch associated with the MAC address in the failure notification (col. 30, lines 65-col. 31, lines 1-3)."

Regarding claim 39, Haggerty discloses, "a network processing device according to claim 38 including an adjacency table that identifies MAC addresses for adjacent network processing devices connected to the switch, the processor routing around any MAC address in the adjacency table matching the MAC address in the failure

5 notification (figure 6, element 34 as described in col. 16, lines 49-64)."

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

10 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15

Claims 5, 6, 8, 13, 14, 24, 25, 27, 33, 34, 36, 40, 43, 46, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggerty et al. in view of U.S. Patent 6,581,166 B1 (Hirst et al.).

20

Regarding claims 5, 24, and 33, Haggerty discloses the method of claim 1, the computer program of claim 21, and the system of claim 29. However, Haggerty lacks what Hirst discloses, "means for sending the failure notifications using an Address Resolution Protocol (ARP) reply (col. 8, lines 23-38 where the ARP reply identifies a failure in that it contains the identity of a "unexpected" address, thus indicating a failure)." It would have been obvious to one of ordinary skill in the art at the time of

25

invention to include the ARP reply for the purpose of establishing a communication path. The motivation for establishing a communication path is so that in the presence of a fault, communication can still be maintained across newly formed paths thus obviating the failed port.

5

Regarding claims 6, 25, and 34, Haggerty discloses the method of claim 5, the computer program of claim 24, and the system of claim 33. However, Haggerty lacks what Hirst further discloses, "a system according to claim 33 including means for generating the ARP reply so that a receiving network processing element will send out  
10 an ARP request for the MAC address in the ARP reply and route around the adjacency associated with the MAC address when no ARP reply is received in response to the ARP request (col. 8, lines 39-46 and col. 9, lines 58-65)." It would have been obvious to one of ordinary skill in the art at the time of invention to include the generating of the ARP reply in response to an ARP request for the same reasons and motivation as in  
15 claims 5, 24, and 33.

Regarding claims 8, 27, and 36, Haggerty discloses the method of claim 1, the computer program of claim 21, and the system of claim 29. However, Haggerty lacks what Hirst discloses, "means for using a heartbeat signal to identify a port failure (col.  
20 10, lines 7-12)." It would have been obvious to one of ordinary skill in the art at the time of invention to include the heartbeat signal for the purpose of monitoring a communication system for faults (Hirst, col. 9, lines 58-65). The motivation for



monitoring a system for faults would be to take appropriate corrective action once a fault is detected so that communication is minimally impacted.

Regarding claim 13, Haggerty discloses the switch of claim 10. However,  
5 Haggerty lacks what Hirst discloses, "wherein the multiple ports use a layer 1 network protocol to detect the communication failure (col. 10, lines 7-12 where the heartbeat signal is detected on the physical layer (layer 1))." It would have been obvious to one of ordinary skill in the art at the time of invention to include the heartbeat signal for the purpose of monitoring a communication system for faults (Hirst, col. 9, lines 58-65). The  
10 motivation for monitoring a system for faults would be to take appropriate corrective action once a fault is detected so that communication is minimally impacted.

Regarding claim 14, Haggerty discloses the switch of claim 13. However,  
Haggerty lacks what Hirst further discloses, "wherein the layer 1 network protocol uses  
15 a heartbeat signal or a loss-of-light detector to detect the communication failure (col. 10, lines 7-12)." It would have been obvious to one of ordinary skill in the art at the time of invention to include the heartbeat signal for the same reasons and motivation as in claim 13.

20 Regarding claims 40, 43, 46, and 49, Haggerty discloses the device of claim 38, the method of claim 42, the computer program of claim 45, and the system of claim 48. However, Haggerty lacks what Hirst discloses, "wherein the failure notification is

received via an Address Resolution Protocol (ARP) reply, the processor sending out an ARP request for the MAC address contained in the ARP reply and rerouting around the adjacent network processing device associated with the MAC address when no ARP response is received responsive to the ARP request (col. 8, lines 39-46 and col. 9, lines 58-65).” It would have been obvious to one of ordinary skill in the art at the time of invention to include the ARP reply for the purpose of establishing a communication path. The motivation for establishing a communication path is so that in the presence of a fault, communication can still be maintained across newly formed paths thus obviating the failed port.

Claims 4, 23, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggerty et al. in view of U.S. Patent 5,959,968 (Chin et al.).

Regarding claims 4, 23, and 32 Haggerty discloses the method of claim 1, the computer program of claim 21, and the system of claim 29. However, Haggerty lacks what Chin discloses, “means for sending the failure notifications using a Cisco Discovery Protocol (col. 10, lines 6-15 whereby the physical link-layer protocol is not only used to establish a connection but to administer transmission over that connection, which includes failure notification messages).” It would have been obvious to one with ordinary skill in the art at the time of invention to use a Cisco Discovery Protocol for the purpose of establishing and maintaining a link-layer connection. The motivation for establishing and maintaining a link-layer connection is that the link-layer is the physical means by which nodes are connected in a network, therefore, it is necessary for these

link-layer connections to exist (and thus a way of controlling them) in order for communication to exist.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over  
5 Haggerty et al. as applied to claim 10 above, and further in view of Hirst et al. in view of  
U.S. Patent 6,256,314 B1 (Rodrig et al.).

Regarding claim 17, Haggerty discloses the switch of claim 10. However,  
Haggerty lacks what Hirst discloses, "wherein the processor sends the failure  
notification in an Address Resolution Protocol reply message that includes a MAC  
10 address associated with the port detecting the communication failure (col. 8, lines 34-  
38)..." It would have been obvious to one of ordinary skill in the art at the time of  
invention to include the ARP reply for the purpose of establishing a communication  
path. The motivation for establishing a communication path is so that in the presence of  
a fault, communication can still be maintained across newly formed paths thus obviating  
15 the failed port.

Haggerty and Hirst however, further lack what Rodrig discloses, the ARP reply  
further includes "a zero hold time (col. 9, lines 30-36 where a zero hold time  
corresponds to an exception packet with a TTL of zero)." It would have further been  
obvious to one of ordinary skill in the art at the time of invention to include the zero hold  
20 time for the purpose of informing the destination that the information in the reply is no  
longer valid because of the zero TTL. The motivation for giving a time limit to data in a  
system is because communication systems are constantly changing and there must be

a way to distinguish between data that is "up to date" (relevant) and data that is too old to be of any use.

Claims 7, 26, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable  
5 over Haggerty et al. and Hirst et al. as applied to claims 5, 24, and 33 above, and further in view of Rodrig et al.

Regarding claims 7, 26, and 35, Haggerty and Hirst disclose the method of claim  
5, the computer program of claim 24, and the system of claim 33. However, Haggerty  
and Hirst lack what Rodrig discloses, "means for sending in the ARP reply any  
10 combination of a null IP address, a null MAC address, or a zero hold time value (col. 9,  
lines 30-36 where a zero hold time corresponds to an exception packet with a TTL of  
zero)." It would have further been obvious to one of ordinary skill in the art at the time of  
invention to include the zero hold time for the purpose of informing the destination that  
the information in the reply is no longer valid because of the zero TTL. The motivation  
15 for giving a time limit to data in a system is because communication systems are  
constantly changing and there must be a way to distinguish between data that is "up to  
date" (relevant) and data that is too old to be of any use.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over  
20 Haggerty et al. in view of U.S. Patent 6,757,281 B1 (Irish).

Regarding claim 16, Haggerty discloses the switch of claim 10. Haggerty further  
discloses, "the network processing devices operate at layer 3 of the OSI model (col. 12,

lines 66-col. 13, lines 1-9)." However, Haggerty lacks what Irish discloses, "wherein the switch operates at layer 2 of an OSI model (col. 1, lines 39-48)." It would have been obvious to one of ordinary skill in the art to have the switch operate at layer 2 for the purpose of, for example, switching an Ethernet packet in an Ethernet network. That is to say, the switching must be done at layer 2 in an Ethernet network because of the address scheme used in Ethernet. The motivation for switching is to forward data from its source to its destination.

Claims 41, 44, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggerty et al. in view of U.S. Patent 6,601,101 B1 (Lee et al.).

Regarding claims 41, 44, and 50, Haggerty discloses the device of claim 38, the method of claim 42, and the system of claim 48. However, Haggerty lacks what Lee discloses, "wherein an adjacent network processing device has multiple ports coupled to the switch, the processor routing around the adjacent network processing device only when the failure notifications identify failures on all of the ports on the switch coupled to the adjacent network processing device (col. 21, lines 42-55 where in Lee what is happening is that an entire switch has failed, thus all ports have failed, and the data is then routed around the failed switch)." It would have been obvious to one of ordinary skill in the art at the time of invention to include the routing around a switch with all ports failed for the purpose of reconnecting the failed links through a different device. The motivation for reconnecting the failed links through a different device is so that the

Art Unit: 2661

communications on those failed links can continue and not be substantially affected by the failed ports.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over

5 Haggerty et al. in view of Hirst et al. as applied to claim 46 above, and further in view of Lee et al.

Regarding claim 47, Haggerty and Hirst disclose the computer program of claim 46. However, Haggerty and Hirst lack what Lee discloses, "identify an adjacent network processing device having multiple ports coupled to the switch (col. 21, lines 42-51  
10 where each device is identifies by its very existence and connection to the switches); and...route around the adjacent network processing device when the failure notification identifies failures on all of the ports on the switch coupled to the adjacent network processing device (col. 21, lines 42-55 where in Lee what is happening is that an entire switch has failed, thus all ports have failed, and the data is then routed around the failed  
15 switch)." It would have been obvious to one of ordinary skill in the art at the time of invention to include the routing around a switch with all ports failed for the purpose of reconnecting the failed links through a different device. The motivation for reconnecting the failed links through a different device is so that the communications on those failed links can continue and not be substantially affected by the failed ports.

20


***Allowable Subject Matter***

Claims 3, 22, and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

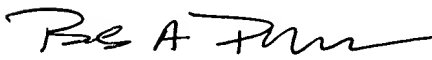
5 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (571) 272-3070. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number  
10 for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.  
15 For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Joshua Kading  
Examiner  
Art Unit 2661

20 March 2, 2005

  
BOB PHUNKULH  
PRIMARY EXAMINER